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8.(Previously Amended) An integrated circuit sensor, comprising:

a comparator that receives an input signal, and compares said input signal against a plurality of predetermined threshold values and provides a plurality of comparator output signals each indicative of whether or not said input signal exceeds an associated one of said plurality of predetermined threshold values; and

an output stage that receives said plurality of comparator output signals and encodes state information associated with said plurality of comparator output signals to provide on a integrated circuit lead an encoded output signal indicative of said state information associated with said plurality of comparator signals,

wherein said output stage comprises means for generating said encoded output signal using pulse width modulation, wherein said state information is encoded within said encoded output signal based upon the pulse/pause ratio of said encoded output signal.

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9.(Cancelled)

10.(Cancelled)

11.(Cancelled)

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12.(Previously Amended) An integrated circuit sensor, comprising:

a magnetic field transducer comprising a Hall effect transducer that generates and provides an input signal;

a comparator that receives said input signal, and compares said input signal against a plurality of predetermined threshold values and provides a plurality of comparator output signals each indicative of whether or not said input signal exceeds an associated one of said plurality of predetermined threshold values;

an output stage that receives said plurality of comparator output signals and encodes state information associated with said plurality of comparator output signals to provide on a integrated circuit lead an encoded output signal indicative of said state information associated with said plurality of comparator signals; and

a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

13.(Previously Amended) The integrated circuit sensor of claim 12, wherein said memory device comprises a read/write memory device that allows said plurality of predetermined threshold values to be changed and stored in said read/write memory device.

14.(Previously Amended) The integrated circuit sensor of claim 12, comprising

means for reading updated predetermined threshold values that are input to said integrated circuit sensor through said integrated circuit lead that also receives said encoded output signal, and for storing said updated predetermined threshold values in said memory device, which provides said updated predetermined threshold values to said comparator for comparison against said input signal.

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15.(Cancelled)

16.(Cancelled)

17.(Previously Amended) An integrated circuit sensor, comprising:

a transducer element that provides a transducer output signal;

a comparator that receives said transducer output signal, and compares a signal indicative of said transducer output signal against a plurality of adjustable threshold values and provides a plurality of comparator output signals each indicative of one of an associated plurality of switching states; and

an output stage that receives said plurality of comparator output signals and encodes switching state information associated with said plurality of comparator output signals to provide on a bi-directional integrated circuit lead an encoded output signal indicative of said state information associated with said plurality of comparator signals;

wherein said output stage comprises means for generating said encoded output signal using pulse width modulation, wherein said state information is encoded within said encoded output signal based upon the pulse/pause ratio of said encoded output signal.

18.(Cancelled)

19.(Previously Amended) The integrated circuit sensor of claim 17, wherein said comparator comprises hysteresis on each of said predetermined threshold values.

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20.(Cancelled)

21.(Cancelled)

22.(Cancelled)

23.(Currently Amended) An integrated circuit sensor, comprising:

- a transducer element that provides a transducer output signal;
- an amplifier that receives said transducer output signal and provides an amplified transducer output signal;
- a comparator network that receives said amplified transducer output signal, and compares a signal indicative of said amplified transducer output signal against a plurality of adjustable threshold values to determine a state of said amplified transducer output signal, and provides a plurality of comparator output signals indicative of said state of said amplified transducer output signal; and
- an output stage that receives said plurality of comparator output signals and encodes switching state information associated with said plurality of comparator output signals to provide on a integrated circuit lead an encoded output signal indicative of said state; and
- a control unit that includes a memory device that stores and provides said plurality of adjustable threshold values.

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24.(Currently Amended) An integrated circuit sensor, comprising:

a transducer element that comprises a magnetic field transducer and provides a transducer output signal;

an amplifier that receives said transducer output signal and provides an amplified transducer output signal;

a comparator network that receives said amplified transducer output signal, and compares a signal indicative of said amplified transducer output signal against a plurality of adjustable threshold values to determine a state of said amplified transducer output signal, and provides a plurality of comparator output signals indicative of said state of said amplified transducer output signal; and

an output stage that receives said plurality of comparator output signals and encodes switching state information associated with said plurality of comparator output signals to provide on a integrated circuit lead an encoded output signal indicative of said state; and

a control unit that includes a memory device that stores and provides said plurality of adjustable threshold values.

25.(Currently Amended) An integrated circuit sensor, comprising:

a magnetic field transducer that generates and provides an said input signal;

a comparator that receives said input signal, and compares said input signal against a plurality of predetermined threshold values and provides a plurality of comparator output signals each indicative of whether or not said input signal exceeds an associated one of said plurality of predetermined threshold values;

an output stage that receives said plurality of comparator output signals and encodes state information associated with said plurality of comparator output signals to provide on a integrated

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circuit lead an encoded output signal indicative of said state information associated with said plurality of comparator signals; and

a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

26.(Previously Amended) An integrated circuit sensor, comprising:

a transducer element comprising a magnetic field transducer that provides a transducer output signal;

a comparator that receives said transducer output signal, and compares a signal indicative of said transducer output signal against a plurality of adjustable threshold values and provides a plurality of comparator output signals each indicative of one of an associated plurality of switching states;

an output stage that receives said plurality of comparator output signals and encodes switching state information associated with said plurality of comparator output signals to provide on a bi-directional integrated circuit lead an encoded output signal indicative of said state information associated with said plurality of comparator signals; and

a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

27.(Previously Added) The integrated circuit sensor of claim 26, wherein said memory device comprises a read/write memory device that allows said plurality of predetermined threshold values to be changed and stored in said read/write memory device.

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28.(Currently Amended) The integrated circuit sensor of claim 26, comprising
means for reading updated predetermined threshold values that are input to said integrated
circuit sensor through said integrated circuit lead that also receives said encoded output signal, and
for storing said updated predetermined threshold values in said memory device, which provides said
updated predetermined threshold values to said comparator for comparison against said signal
indicative of said transducer output signal~~input signal~~.

29.(Cancelled)

30.(Previously Amended) An integrated circuit sensor, comprising:
a transducer element that comprises a magnetic field transducer and provides a transducer
output signal;
an amplifier that receives said transducer output signal and provides an amplified transducer
output signal;
a comparator network that receives said amplified transducer output signal, and compares a
signal indicative of said amplified transducer output signal against a plurality of adjustable threshold
values to determine a state of said amplified transducer output signal, and provides a plurality of
comparator output signals indicative of said state of said amplified transducer output signal;
an output stage that receives said plurality of comparator output signals and encodes
switching state information associated with said plurality of comparator output signals to provide on
a integrated circuit lead an encoded output signal indicative of said state; and
a control unit that includes a memory device that stores and provides said plurality of
predetermined threshold values.

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31.(Previously Added) The integrated circuit sensor of claim 30, wherein said memory device comprises a read/write memory device that allows said plurality of predetermined threshold values to be changed and stored in said read/write memory device.

32.(Currently Amended) The integrated circuit sensor of claim 30, comprising means for reading updated predetermined threshold values that are input to said integrated circuit sensor through said integrated circuit lead that also receives said encoded output signal, and for storing said updated predetermined threshold values in said memory device, which provides said updated predetermined threshold values to said comparator for comparison against said signal indicative of said amplified transducer output signal~~input signal~~.

33.(Cancelled)

34.(Previously Amended) The integrated circuit sensor of claim 8, comprising a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

35.(Previously Added) The integrated circuit sensor of claim 34, wherein said memory device comprises a read/write memory device that allows said plurality of predetermined threshold values to be changed and stored in said read/write memory device.

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36.(Previously Added) The integrated circuit sensor of claim 34, comprising
means for reading updated predetermined threshold values that are input to said integrated
circuit sensor through said integrated circuit lead that also receives said encoded output signal, and
for storing said updated predetermined threshold values in said memory device, which provides said
updated predetermined threshold values to said comparator for comparison against said input signal.

37.(Cancelled)

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